# Chapter 3

2 Dimensional Motion and Vectors

### Intro to Vectors

3.1

## Objectives

- Distinguish between a scalar and a vector.
- Add and subtract vectors by using the graphical method.
- Multiply and divide vectors by scalars.

#### Scalars and Vectors

- A **scalar** is a physical quantity that has magnitude but no direction
  - Volume, speed
  - They are *italicized* in the book (v=2 m/s)
- A **vector** is a physical quantity that has both magnitude and direction.
  - Velocity, displacement
  - They are **bolded** in the book (v=2 m/s N)

#### Resultant

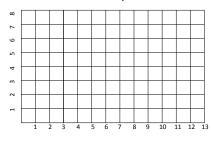
- The **resultant** is a vector that represents the combination of 2 or more vectors
- In a straight line, it is easy to find a resultant.
- You go 30 m north and then 10 m south
- 30m + (-10 m) = 20 m North

### Graphical Addition of Vectors

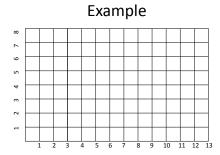
- Using a piece of graph paper you can make your vectors
- Then draw the resultant and then measure it and find the angle

resulti Start

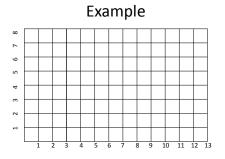
# Example



You walk 6 meters East and then 6 meters North



You walk 10 meters East and then 7 meters North



You walk 6 meters East , 4 meters North, and 2 meters East

